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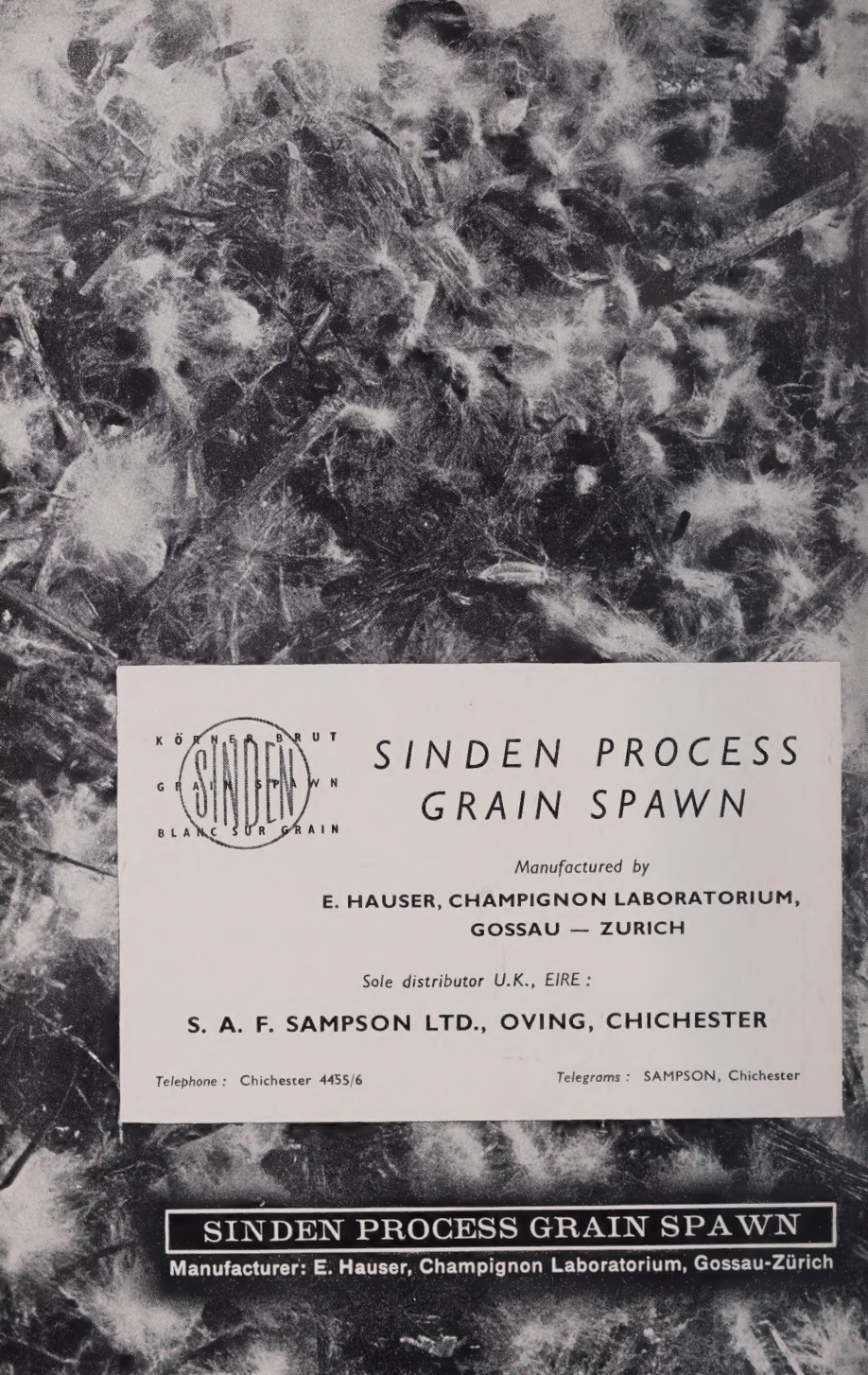
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EDITORIAL.

COPENHAGEN, 1959

The Fourth International Mushroom Congress on the Scientific Aspects of Mushroom Growing, which took place in Copenhagen in July will be long remembered by all those who were privileged to be present, not only by the Danish growers themselves, who proved such hospitable folk, but by all the others who travelled from far and near in order to be present.

In any free Society the question " Was it all really worthwhile?" is bound to be asked but this Copenhagen Congress put the answer beyond doubt.

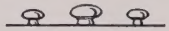
Growers and scientists got together in an effort to throw some light on the many and complex questions which enmesh both alike and the point at which science and practice meet became less obscure.

This Congress provided a common meeting ground where experiments were described in detail and where conclusions reached were not only ventilated, but were afterwards discussed by scientists from many lands—a meeting ground which could only be provided by such a world-wide gathering as this. In this respect the support given by the American industry in general, providing an opportunity for European investigators to meet their American counterparts for the first time, was particularly gratifying. Of course there were disagreements on this and that, but disagreements surely are the sign of a healthy and progressive industry.

Perhaps there was some substance in the subdued grumbling from some of the growers on the grounds that insufficient attention was paid to the more practical problems of mushroom growing, problems which they could readily understand and absorb, and certainly the backbone of the support for Copenhagen came from practical growers—as it did in Paris and elsewhere. This perhaps, is one of the lessons to be learned. But all in all, this Copenhagen affair was a remarkable achievement of organisation, with its programme of over sixty papers being delivered in the space of four somewhat exhausting days, followed by a spate of excursions to castles and farms, both in Denmark and Sweden, culminating with the final banquet.

This Scientific Congress had its beginnings in the United Kingdom and to those who were associated with this movement from the beginning go the thanks of the entire industry throughout the world.

To us in the United Kingdom, where the initial conference was born and carried through, the gatherings at Gembloux, Paris, and Copenhagen were particulary gratifying. I for one am glad, glad too that from the United Kingdom have come many splendid ideas, far removed from the fields of mushroom growing. WRA

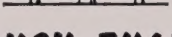


Calypso . . . . . .

TIMELY PRATTLE—SHELF-TRAY BATTLE

This mushroom calypso of timely prattle
Presents new angles on the Shelf-Tray battle.
Towards trays to-day there is a slight trend,
But one must be careful not to offend—
To offend Shelf Growers (the salt of the lot)
Would be under the belt as the battle is fought;
So let's be impartial and just fool around
With a few pros and cons as these are found.
The Shelf System suits the scattered holding,
While trays, so plain without any moulding,
Suit the compact grower (perhaps short of muck)
Who believes it's a ' lift ' to possess a fork-truck.
This Tray System, war-baby born of necessity,
Produces many mushrooms not prone to obesity,
While its opposite number gives them a girth
That destines them large, right from their birth.
A youngish horse, if isolated to live alone,
Will, it's reported, pine away to the bone;
Likewise 'rooms, full of horse-blood themselves,
' Love ' lots of company and they get it on shelves.
The Tray-man is saving on fuel, no doubt,
Yet his brother's peak-heat cancels all cook-out;
The latter delights in direct-filled manure
And claims its handlings are very much fewer;
The former, in spite of reported slipped-discs,
Claims that, all told, he takes less risks;
That his way is right, each is dogmatic,
And the other wrong, he is equally emphatic;
But truly, I think, the grower himself,
Just whether he grows on tray or shelf
Is decided largely by how he thinks on
The matter of mushroom class-distinction—
U, or non-U, to be on shelves or trays?—
He decides, out of snobbery, and there he stays!

F.P.



FANCY THAT!

There is a touch of the Irish about a story from Larne, Belfast, which appeared in the Irish Weekly of 8th August.

Andrew Doole, a Larne insurance agent, has picked two crops of mushrooms growing through the floor-boards of his car, near the accelerator, and says, " I'll bet there'll be another crop in a few days' time ".

THE CASING LAYER, FRUITING AND MOISTURE STRESS

P. B. FLEGG

Glasshouse Crops Research Institute

In recent reports (1, 2 and 3) of the progress of research into the functions of the casing layer frequent use has been made of the term " moisture stress ". One way of expressing the level of moisture stress, *pF*, was used in the annual reports of the Mushroom Research Association at Yaxley, but in those early days we were not able to establish a clear correlation between the behaviour of the mushroom and moisture stress. Now that a relationship has been found and further study of this aspect is one of the major items on the mushroom research programme at the Glasshouse Crops Research Institute it may be helpful to explain the meaning of the term " moisture stress " and why it is important in mushroom growing.

If a light sprinkling of water is applied to a dry soil the water is readily absorbed. In order to get this water back from the soil it would be necessary to exert a considerable suction pressure, probably of several hundred atmospheres, to regain the last drop. When a dry soil is watered more liberally, a suction pressure of perhaps one atmosphere would be sufficient, to regain just a little of the water, but to extract it all a pressure of several hundred atmospheres would again be necessary. Thus the suction pressure needed to extract water rises as the amount of water left in the soil gets less, tremendous pressures being needed to regain the last drop.

For a plant, including the mushroom, to obtain water from soil or peat it must be able to exert a considerable suction pressure. In fact, most green plants can only exert a maximum suction pressure of about 10-15 atmospheres and water held more firmly than this is just not available to them. The point at which water ceases to be available to green plants is known as the wilting point.

In the same way that plants cannot extract water from a soil which is too dry they are unable to extract water from a solution containing too great a quantity of dissolved salts, even if the plant roots are immersed in the salt solution. This is because the osmotic pressure of the solution due to the presence of the dissolved salts is higher than the suction pressure which the plant can exert. The greater the quantity of dissolved salts in a solution the greater the suction which must be exerted by the plant in order to extract water from the solution.

The main forces against which all plants have to struggle to take up water include the absorptive forces between the soil particles and water, which are important in all soils and materials used for casing, and those due to the presence of dissolved salts, usually of little importance in agricultural soils but of greater importance in many glasshouse soils, casing materials and mushroom composts. The sum of these forces is known as the " total moisture stress ".

Many terms are used to describe these forces either singly or together. Perhaps the most common are moisture tension or capillary potential which usually refer to the forces between water and soil particles; to these should be added any contribution from dissolved salts to give the total moisture stress. This quantity is usually, but not always, referred to as a suction or negative pressure and measured in terms of the height of a column of water. As the pressures reached are sometimes considerable it is frequently convenient to convert to a logarithmic scale known as the *pF* scale, on which a suction pressure of 100 centimetres of water becomes a *pF* value of 2, and one of 1,000 centimetres of water a *pF* value of 3.

As a result of experiments carried out over the past four years in which the moisture stress in the casing layer has been varied by the application of several levels of soluble salts, it has been found that the initiation of pinheads is directly related to the general level of moisture stress. When the level of stress is low, as it usually is in the casing layer, the number of mushrooms produced is relatively large, but as the level of stress rises the number of mushrooms which form becomes smaller until the moisture stress is so high that no fruiting occurs at all. Mushroom compost has been found to contain a high proportion of soluble salts, and its level of moisture stress is therefore high; consequently uncased compost is an unsuitable medium for fruiting. If the moisture stress at the surface of the compost is reduced sufficiently by heavy watering, fruiting can be induced. In a small scale experiment a yield of nearly 1 pound per square foot was obtained on uncased compost by treating it in this way.

The essential condition of low moisture stress is, however, more readily attained if a casing layer is present, but even then the level of stress must be kept low over a sufficiently long period. Alternate periods of high and low stress are almost as bad as a continuously high level of moisture stress. Of course, the grower achieves the right conditions by regular watering, but it is important to realise that a low level of moisture stress is more important than the actual quantity of water in the casing medium.

Materials of high water holding capacity, if initially well watered, can lose a considerable amount of water without the level of moisture stress becoming too high. On the other hand, materials of low water holding capacity have only to lose a little water by evaporation and the level of moisture stress can then become very high indeed. Under conditions of high humidity, as often found in caves where very little drying out occurs, a sandy material of low water holding capacity can make a satisfactory casing material. In this country evaporation from the beds is frequently considerable, and under these conditions a material of high water holding capacity, such as a clay soil or a peat mixture, is essential. It is worth considering whether any advantage may be gained from altering the composition of the casing mixture according to the prevailing conditions in the growing house. For instance, a high proportion of peat could be used in winter when drying out is more of a problem, and in summer, when the beds dry out more slowly, the proportion of peat might be reduced.

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Secondly, you have greater assurance that your crop will be free of pests and disease. The higher temperature either kills off the pests inside the heap or drives them to the surface, where they can be dealt with by insecticides. High temperatures during fermentation are particularly vital in preventing disease such as Vert-de-gris, of which there is special danger when composting during the winter months.

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Evidence so far available suggests that the main purpose of watering is to maintain the conditions of low moisture stress in the casing layer necessary for the initiation of a reasonable number of pinheads. Once the pinheads are formed the level of moisture stress is of less importance for it seems that the mushroom can obtain a considerable proportion of the water required for its development from the compost. It is unlikely, therefore, that extra watering while the mushrooms are developing will contribute much to the weight of the crop. However, watering in mid flush may be none the less important for its effect on the relative humidity of the air which surrounds the growing mushrooms.

Thus we now have a clearer understanding of why the casing layer is so important and why fruiting does not occur readily on uncased compost.

This knowledge represents a useful advance but it must be emphasised that there is much more to be learnt of the relationship between fruiting and moisture stress. Undoubtedly several other factors besides moisture stress are also involved and must all be studied before a clear picture emerges.

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1. **Flegg, P. B.** (1958). Some aspects of the casing layer in relation to fruiting of the cultivated mushroom. *Rep. Glasshouse Crops Res. Inst.* 1956, 93-105.
2. **Flegg, P. B.** (1959). Some aspects of the compost and casing layer in relation to fruiting of the cultivated mushroom. *Rep. Glasshouse Crops Res. Inst.* 1957, 108-115.
3. **Flegg, P. B.** (1959). Proceedings of the 4th International Mushroom Congress, Copenhagen, July, 1959, in the press.

NEW LIFE HONORARY MGA MEMBER

C. Riber Rasmussen of Denmark

Mr. C. Riber Rasmussen who, in 1952 was appointed Technical Director at the Danish Mushroom Research Station in Copenhagen, has been made an Honorary Life Member of the Mushroom Growers' Association, in recognition of his services to the Mushroom Industry in general.

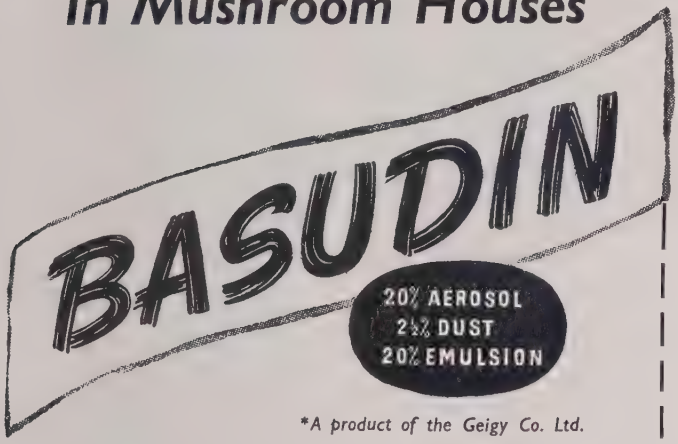
Mr. Rasmussen, well-known to many United Kingdom growers, is a somewhat controversial figure in the world of cultivated mushroom producers. He is the author of a number of publications dealing with mushrooms, including in all some 44 articles, leaflets and larger publications of which he was the sole author and a number of others with which he has been associated. Among his works are several which have appeared in the *MGA Bulletin* from time to time including " Pig Manure in Mushroom Growing " (3/-) and " The Improvement of Composts " (5/-) both of which are available in pamphlet form from the MGA Office. One of his larger works dealing with pig manure and mushroom composts is at present being translated into English and will be made available to MGA members.

Born at Ravnholt Castle in 1924, Mr. Rasmussen graduated from

Continued on Page 308.

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Mr. Bo Wendler, (left) and his father Mr. Tage Wendler, with one of the charming young ladies who, in national costume, waited on the guests.



Two of the men behind it all, C. Riber Rasmussen and Fred. C. Atkins.



Mr. and Mrs. I. T. Hansen with Mrs. Fladeland Nielsen (right).

MGA Chairman, Raymond Thompson with Mr. Fladeland Nielsen.





Count E. W. Grevenkop-Castenskiold.

Photos by :
R. THOMPSON, F. C. ATKINS and G. W. BAKER

PHEW!! THAT WAS COPENHAGEN

The Fourth International Mushroom Congress at Copenhagen in July was important in many ways and marked a milestone in the history of these conferences which are designed, primarily, to discuss the scientific aspects of mushroom growing.

Not only was there a record attendance of delegates from more than twenty countries in all but, for the first time, representatives of the American mushroom industry not only supported the conference but took an active part, in that they gave several papers during the course of the proceedings.

It is not the intention here to deal with the more serious side of the conference since, elsewhere in this issue, Dr. R. L. Edwards deals with this.

In all, well over 300 mushroom enthusiasts including their wives, officially attended the conference and, of these, about 180 delegates proper were present at the Royal Veterinary College, Copenhagen, to listen to the many papers which were delivered –there were over sixty on the printed programme. The MGA party numbered between 50 and 60 and was by far the largest contingent from any single country.

The attendances at the opening ceremony and for the more serious side later—from Monday to Thursday inclusive the proceedings opened at 9 a.m. and concluded round about 6 p.m.—were extraordinarily good and this fact was much commented on.

Without question by far the most moving moment of this whole Copenhagen affair came towards the end of the final day of lectures when our own Mr. F. C. Atkins announced his retirement as President of the International Commission, a position he has occupied since these conferences first began in England in 1950. He was given a great ovation with all the delegates standing and applauding for several minutes following a presentation to Mr. Atkins of a suitably inscribed silver cigarette box. A similar presentation was made during the week to Mr. C. Riber Rasmussen in appreciation of the tremendous amount of work which he had put in as chief organiser of the conference.

Prof. N. Thorkil-Jensen, Rector of the University, gave a short address of welcome at the official opening ceremony on Saturday and he was followed by Prof. H. K. Paludan, the Congress President, followed by Dr. Cecil Treschow, the Vice-President. A contribution by Mr. F. C. Atkins was followed by a welcome from Mr. E. Fladeland Nielsen, representing the Danish mushroom industry. The opening session closed with a welcome on behalf of the Danish Minister of Agriculture.

Following lunch there was a visit to the Danish Mushroom Research Centre in charge of Mr. Rasmussen where there was much of interest for all the visitors and a splendid display of mushrooms growing under various experimental conditions.

Sunday was a free day but promptly at 9 a.m. on Monday the opening lectures got under way. At the end of each of the lecture days films were shown and voted on, with the top award going to a

film from America followed by that taken at the Broadham Produce Co.'s farm in England. There was too a photographic competition which, perhaps surprisingly, attracted quite a large number of entries. In this competition the top prize went to Holland (Dr. Pieter Bels).

It is not an exaggeration to say that, on the Thursday evening, by the end of four days almost continuous sessions of lectures, most of the delegates were suffering from mild exhaustion—and it was extremely hot too throughout.

Friday morning (8.30 a.m. " precisely ") saw the start of the first planned excursion to the Carlsberg Brewery—there had been two earlier excursions planned especially for the ladies—and this was followed by a visit in the afternoon to three Danish mushroom farms, those of Mr. N. Fladeland Nielsen, Mr. Peter Jörgensen and Mr. I. T. Hansen, the latter of 120,000 sq. ft. with its staggering expansion actually in progress, designed to double the area of the farm.

The start on Saturday morning was even earlier (8 a.m.) for the run to Frederiksborg Castle and later, through the lovely countryside of Seeland, to the huge farm of Mr. E. W. Grevenkop-Castenskiold, large not only as far as mushrooms were concerned but one of, if not the largest general agricultural farm in Denmark, covering several thousand acres. It didn't end there either for Mr. Grevenkop-Castenskiold has the largest mink farm in Europe and the visitors were able to inspect this farm with its population of 25,000 mink.



A general view of some of the delegates at the opening ceremony.



C. Riber Rasmussen watering in the compost shed.

On Sunday the delegates had to arrive at the starting point at 7.45 a.m. for the coach run to the ferry and the crossing to Sweden en route to the Fammarps establishment at Halmstad, with its all too short pause at the beautiful beach of Tylösand. The visit to Fammarps—the largest farm in Sweden—was again packed with interest but time was far too short. Here again, as at all the other farms visited, the hospitality was on the grand scale with Mr. Tage Wendler and his son, Mr. Bo Wendler, supervising the arrangements.

So, bundled somewhat unceremoniously into the coaches, the return journey began and eventually Copenhagen was reached by about 6.30 p.m. It was all a bit of a rush for the closing banquet at 8.15 p.m. but everyone made it. There were the many speeches in a babble of various languages, and many deserved references to the work of Mr. C. Riber Rasmussen and his organising committee. There were well earned thanks to the Danish hosts and presentations of compacts to four ladies who had worked so hard to make the congress a success, Mrs. Jörgensen, Mrs. Rasmussen, Mrs. Fladeland Nielsen and Mrs. Hansen, and presentations too, to several other people.

It was at this banquet that Mr. Raymond Thompson, Chairman of the Mushroom Growers' Association of Great Britain and Northern Ireland, announced that Mr. Rasmussen had been made a Life Member of the MGA, thus joining a select band of five others who have been similarly honoured.

The end of the dancing came at about 2 a.m., but your correspondent was certainly not alone in seeing the dawn break over Copenhagen. It was Monday, and by 11.45 a.m. that morning the main MGA land party (many went by air also) was on its way back to Esbjerg, Harwich and so to London.

WRA



MGA Chairman Raymond Thompson did not intend to miss anything in this experimental house.



Looking down on the green courtyard of the Royal Veterinary College, where some of the delegates at the opening session were enjoying a short recess.

COPENHAGEN, 1959

Some personal memories of the Fourth International Mushroom Congress

By R. L. EDWARDS

For me, this Congress was in several ways a most enjoyable and stimulating experience. First of all, having been closely concerned with arrangements for the First Congress, and slightly with the Second, I was able to appreciate the size and perfection of the organisation, which was first revealed on arrival at the Secretariat, and again day by day as the meetings and excursions went on. Even when there was a hitch, and a coach was marooned in Sweden, our very wet Secretary General conjured up another coach at short notice, late on Sunday afternoon. I take off my hat to him once more, for all that he and his helpers did.

My next thought is of the hospitality shown to us by the mushroom growers whose farms we visited. In the middle of one of the worst summers for mushroom growing that they have ever experienced, they welcomed between two and three hundred of us, and really made us welcome with generous refreshment and freedom to go where we liked. We must all remember them with gratitude, and hope the effects of the hot weather have passed without causing them too much loss. Another memory from those visits is of the rate of expansion in progress or planned, which I should think is greater in proportion than anything we have seen in this country. I hope their market will grow proportionately, without any appreciable drop in prices.

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The other, a tray grower using a shallow tray with not more than 4" of compost is cropping 390 lbs. of mushrooms to the ton (8 cubic yards) of manure. Both have one thing in common. Excellent crops, excellent quality and of course **MOUNT SPAWN.**

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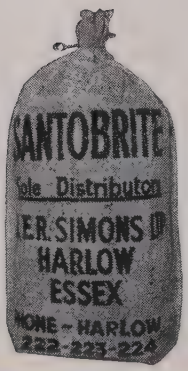
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S . . HARLOW 222, 223, 224

Turning to the meetings, I think the papers read and private discussions revealed a much more vigorous and healthy state of mushroom research than at any time since I became interested in it. Thirteen years ago I was fired with the urge to find out what makes the mushroom fruit. Two or three years ago my hopes of seeing the answer had rather faded, but after the slightly chaotic but interesting informal discussion on causes of fruiting, and various private discussions during this Congress, my hopes of seeing this problem solved were raised higher than ever before. There are still some points of conflict between various schools of thought, but many ideas which had seemed to me to be incompatible, were reconciled and woven into an acceptable pattern. This was intellectually the outstanding feature of the Congress as far as I was concerned.



m-m-m-Mushrooms!

On the practical side I went to Denmark hoping and expecting to learn enough to make the visit worth while to a grower, as well as for the pleasure and interest I knew I should find there. I returned home well satisfied in this respect. I think the most notable single contribution from the strictly practical grower's point of view was Rasmussen's account of " Shake-up Spawning ". It is simple, and would appear to be almost universally applicable, at no extra cost for equipment, etc., only needing a few extra man-hours per crop. It is early to say exactly how much difference it will make under English growing conditions, because in the Danish experiments it was used with deep beds, probably a heavy cropping brown mushroom, and stumps were included in the yield, but the experimental figures suggest that it should give us appreciably higher yields. Some of Mrs.Hauser's comments, particularly about the risk of infection, should be remembered; I have always thought that to open up all the compost after peak-heating, as is



Fred. Atkins with the ever youthful Dr. Lambert (centre) and Donald Hughes, both from the U.S.A.

also done for " Through Spawning ", is rather inviting pests or diseases to step in, but we were assured at Southport that this danger has not materialised, and the method is being quite widely used. The same danger is present in " Shake-up Spawning ", with the added factor of a week or so between spawning and " Shake-up " during which pests or diseases might get into the bed. Any which do so will, of course, be just as thoroughly distributed throughout the bed as the spawn is, and this could have disastrous results.

It is therefore essential for either " Through " or " Shake-up " spawning, to be reasonably sure that at the time of treatment no pest or disease is present to be spread with the spawn.



Lunch in a delightful setting during one of the ladies' excursions.

One of the things I was most looking forward to was more definite information about air conditions in practical mushroom growing, preferably in terms suitable for practical application. I learned quite a lot, though some of it was not in directly usuable form. Rasmussen with a 4 inch layer of air found yields increased by changing it up to about 20 times an hour. When the layer of air was 12 inches thick, Reeve and his colleagues found a smaller number of changes sufficient, and it was stated that the two results agreed quite well. But in a 12 inch layer of air over a mushroom bed, how much does the top 8 inches do? And in most shelf houses the layer of air is thicker still. Perhaps Mr. Flegg or someone will do some arithmetic, for example on the rate of diffusion of carbon dioxide and water vapour upwards from the bed surface into a column of air, and compare it with the rate of movement of the air due to renewal or re-circulation.

It was good to see such a vigorous German attack on the physical problems of casing soil, air conditions, and fruiting.

There was proportionately less work on diseases than at previous Congresses, and for me the most notable paper was Miss Gandy's, possibly because when she started on the " Watery Stipe " investigation I mentally put her chances of success fairly low—not, I hasten to add, through lack of respect for her ability, but because it seemed such a very ill-defined subject to investigate.

I very much look forward to seeing Mushroom Science 4, and I hope means will be found of having the papers, variously in English, French or German, and all the summaries, carefully sub-edited by a native of the respective country.

I have been told that Mushroom Science I, for which I was mainly responsible, had mistakes in the French papers and summaries; M.S.3 certainly had in the English and German ones. Such mistakes can and should be avoided in future.

Many other memories come to mind, of a theory as to the Mother-country of mushroom growing; of the wonderful display on the tables at the inaugural lunch; of certain very distinguished members most unwontedly queueing up to drink water; of the sound of a gong and " I am so sorry "—though he rarely had need to be; of Asger Klougart's brilliant fable about " The Ugly Pinhead "; of a notice requesting members " not to tread on our mushroom flies ", which was prepared but not shown at one of the farms; and of people I came to regard as good friends although neither of us could understand a word the other said.

For all this and much more, Thank You, Denmark.

WORLD'S PRESS DIGEST

Mushrooms a slightly improved trade. (*Grower*, July 4/59). Quantities were much too great for the limited number of requests for them. (*Nurseryman Seedsman*, July 9/59). Smaller consignments of mushrooms had arrived so that demand was favourable. (*Nurseryman Seedsman*, July 16/59).

Edward L. Sumner, Oxford, Pa., grower, became the fourth president of the American Mushroom Institute, in succession to Vincent Santucci. AMI's *Mushroom News*, July/59.

Many different hands come in contact with mushrooms, so it is most necessary to peel them. The outside skin will hold many impurities, such as dust and dirt.

Miss Enfinger, West Worthing, in *Radio Times*, July 31/59.

One thing stands out in my mind to-day and that is the absolute necessity of advertising mushrooms in these times. Our greatest danger is over-production. The consumption of mushrooms will increase but very slowly. Surveys have shown that purchases of mushrooms are classified as impulse buying . . . . . Each grower should do everything in his power to cut costs as much as possible.

Vincent Santucci in AMI's *Mushroom News*, July/59.

Designed for the collection and disposal of waste, a new tipping truck is shaped so that it rolls over quickly and easily to dump its contents. It is easy to handle and manoeuvre and holds approximately 12 cu. ft. It is $33\frac{1}{2}$ in. high, 40 in. long and 30 in. wide, and is made of $\frac{1}{8}$in. steel plate. *Business*, July/59.

" Tests have suggested that growth accelerates in some plants when pressures are reduced ", said Mr. Hyman Stein, whose " lunar

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garden " is part of a research programme by which the U.S. Air Force hopes to grow vegetables on the moon. Hitherto crops have been limited to algae, lichens and Iceland moss, but runner beans, turnips and carrots are now growing in pressurized glass jars.

Daily Telegraph, August 4/59.

There is much to be said for planning ahead to lay down at least part of the glasshouse area to a catch crop of mushrooms. It is probably true to say that the catch-cropper achieving only average results comes off better than the specialist mushroom grower with his purpose-built installation, as he avoids both the lowest price periods of the year and the complex problems of site contamination.

Frank Allerton in *Nurseryman Seedsman*, July 30/59.

An assurance that horticultural products are not included in the new trade agreement which Britain has made with the Little Seven countries, chief among which is Denmark, was given in the House of Commons by the Chancellor of the Exchequer, Mr. Heathcoat Amory.

Commercial Grower, July 17/59.

The Minister of Agriculture, Mr. John Hare, speaking at Cambridge, said: " The housewife is demanding more and more prepacked, canned and frozen goods. Yet we are only seeing the start of that demand ". He emphasised the need to keep costs down and quality up.

Nurseryman Seedsman, July 23/59.

Holland's agricultural labour force has fallen by 100,000 in ten years, a loss of one quarter of the total. The Dutch government is launching a nation-wide plan to give practical instruction to workers to stop the drift.

Grower, July 11/59.

A careful selection from naturally occurring or irradiated spores seems to offer the best opportunity to improve existing strains. This promise proved true in the case of culture No. 286, isolated at the Pennsylvania Experiment Station and introduced to growers in 1952. In two experimental crops, No. 286 produced yields 20 and 31 per cent. better than check strains in commercial use.

K. J. Cole in Darlington's *Mushroom News*, July/59.

A scientifically formulated bituminous sealant, known as Secoflex, will resist the effects of weathering, immersion in water and of continuous movement of the joint over a wide temperature range. Uses cover the construction and repair of wide joints, cracks and cavities in concrete, brickwork, asphalt and metal structures. From Secomastic Ltd., Western Road, Bracknell, Berks.

Industrial Equipment News, mid-June/59.

A small chlorinator known as the Type N.S., is suitable for light industrial requirements and for the smaller dairies and food factories. With dimensions of 30 in. by 9 in. by 12 in. and a weight of only 24 lb., the unit can be wall-mounted or on the back of a vehicle. Applications include the treating of water supplies in rural areas. From Chlorination Equipment Ltd., 129 Kingsway, London, W.C.2.

Industrial Equipment News, mid-June/59.

Great News for Mushroom Growers!



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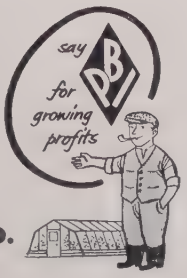
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FOLKESTONE EXHIBITION AND CONFERENCE

6TH AND 7TH OCTOBER

Arrangements in connection with the Mushroom Industry Exhibition and Conference at Folkestone are now well in hand and the chief items on the programme as given below.

Exhibitors will no doubt be glad to note that the programme has been so arranged as not to interfere in any way with the times of the Exhibition.

This time a dance has been included and it is hoped by the Exhibition Sub Committee that members young and old will give this full support. It was quite evident at the International Conference at Copenhagen in July that more and more young people are taking an active interest in commercial mushroom growing and this dance—the one at Eastbourne in 1956 was successful—will, it is hoped, particularly attract the younger set.

To meet some previous criticism the latest time of entry for the mushroom competitions has been put back until 3 p.m. on Tuesday, 6th October, and this should enable competitors from long distances to get their exhibits to the hall in reasonable time.

A " Brains Trust " has always been a popular feature of meetings of mushroom growers and popular demand has been met this year by the inclusion of such an attraction.

Particular interest will be caused by the visit of Mr. C. Riber Rasmussen, one of the outstanding personalities at Copenhagen. His lecture takes place on the afternoon of 7th October with the " Brains Trust " the previous early evening.

There will, as usual, be the ever popular " get together " of growers, their ladies and friends, etc., at The Imperial Hotel, Hythe, at 8.30 p.m. on the evening of 5th October.

Publicity will also be carried out in the Folkestone area with shop window competitions, cookery demonstrations, etc.

Preliminary Programme

Monday 5th October:

8.30 p.m. Get Together, Imperial Hotel, Hythe.

Tuesday, 6th October:

9.30 a.m. to 4 p.m. Exhibition, The Leas Hall, Folkestone.
3 p.m. Mushroom Competition—Judging Commences.
5 p.m. " Brains Trust ", Imperial Hotel, Hythe.
9 p.m. to 1 a.m. Dance, Imperial Hotel, Hythe.

Wednesday, 7th October:

9.30 a.m. to 3 p.m. Exhibition, The Leas Hall, Folkestone.
3.30 p.m. Lecture, Imperial Hotel, Hythe—
C. Riber Rasmussen.

CORRESPONDENCE

On page 214 of the June issue of your journal you draw attention to fans that have been " tropicalised " to withstand conditions encountered in peak heating houses.

We would like to mention that in 1952 we introduced a circulating fan made to our own specification for use during pasteurisation. The motor of this fan was fully weather-proofed to withstand high humidity, and constructed in such a way as to operate efficiently at maximum pasteurising temperatures.

The fan proved to be so successful that a large number were sold to growers both at home and overseas, and there must be few farms that do not now possess one or more of our " tropicalised " circulating fans. With the advent of forced draught circulation by means of " blowers " we have now introduced an 8-inch multivane fan or " blower ", which can be powered by the motor taken from one of these circulating fans. In effect, the grower can now have a " tropicalised " blower by using the motor from his circulating fan for this alternative purpose.

To go one stage further, we can now offer a flame-proof fan that can be used during the ' cooking-out ' process, when the ordinary " tropicalised " fan motor will be working at or above danger point.

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One of the most striking features of the Copenhagen Congress in July was the number of young people coming into the mushroom industry. This healthy situation is to be widely encouraged and, so far as we are concerned in Great Britain and Northern Ireland, I suggest serious consideration is given before the next Annual Meeting to the idea that 20 per cent. (*i.e.*, three) of the Executive Committee should be under 25 years of age. This young-blood transfusion would be to everyone's advantage. **Fred. C. Atkins.**

There is little doubt that the transfusion of young blood into any organisation is essential if that organisation is to continue to thrive but the suggestion here of 20% may well prove quite impossible in view of the complete lack of success which, a year or two ago, attended the effort made to form a junior MGA. —EDITOR.

PRESIDENT OF HONOUR

We are informed that a new office, that of President of Honour, has been created to recognise the services of Fred. C. Atkins who has just resigned after 10 years as President of the International Commission on Mushroom Science.

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DR. E. B. LAMBERT

AT LITTLEHAMPTON



Dr. Edmund B. Lambert, who is in charge of mushroom research for the U.S. Department of Agriculture at Beltsville, Maryland, repaid the compliment of Mr. Frank W. Toovey's visit to Beltsville last year when he spent a few days in England on his way to the Copenhagen Congress. He was invited to "sit in" on a meeting of the MGA Research Sub-Committee on 13th July. He is here pictured in conversation with the Director of the Glasshouse Crops Research Institute, Littlehampton, and with members of the Institute staff particularly interested in mushrooms, and three of the MGA Sub-Committee, left to right: Dr. Lambert, Mr. Fred. C. Atkins, Mr. Raymond Thompson (MGA Chairman), Mr. I. J. Wyatt (entomologist), Dr. N. W. Hussey (head of the entomology department), Dr. L. Broadbent (in charge of plant pathology), Dr. H. H. Glasscock, Mr. Peter B. Flegg (soil chemist), Miss Doreen G. Gandy (plant pathologist) and Mr. Toovey (Director of Research at the Institute).

GCRI OPEN DAY

The annual Open Day at the Institute was attended by a representative number of mushroom growers. It will be recalled that, last year, a special day for mushroom growers was provided but this year, quite understandably, no such special concession could be organised.

Among those who made speeches after lunch was Mr. T. Ainslie Robertson, Chairman of the Governing Body, and Mr. F. W. Toovey, the Institute Director. In his speech Mr. Toovey gently but firmly chided those critics of the Institute who wanted quicker progress. Amidst some laughter Mr. Toovey reminded them that, as far as the Institute was concerned, the impossible would take a little while and miracles just a little longer. He pointed out that it was essential, in the matter of scientific experiments, to progress step by step on scientific proof rather than on hopeful endeavour.

Those mushroom growers who attended were impressed, not only with the experimental mushroom work actually in progress but also with the programme planned ahead. There were reports on the compost and casing layer in mushroom cultivation (Mr. Flegg), mushroom pests (Dr. N. W. Hussey and Mr. I. J. Wyatt) mushroom diseases (Miss Gandy) and fungicides (Mr. W. H. Read).

PUBLICITY NOTES

Over £7,000 collected so far

Owing to the printing strike it was not possible, in the July and August issues of *The Bulletin*, to give the customary publicity to the various contributors to the MGA Publicity Fund.

In the months referred to contributions have been received from the various spawn merchants and distributors including Messrs. W. Darlington and Sons Ltd., of Worthing; The Monlough Food Production Co., Ltd., Ballygown, Belfast; H. Mount & Sons Ltd., Littlebourne, Canterbury: S. A. F. Sampson Ltd., Oving, Chichester and White Queen Ltd., Yaxley, Peterborough. A further contribution to the fund was received from Messrs. Reuben Levy Ltd., Salesman, Spitalfields Market, E.1.

The list of contributors appears on page 310.

For the period 1st November, 1958 to 24th August, 1959, the magnificent amount of £7,277 8s. 11d. was contributed to this fund. A full report on publicity matters to date will appear in the October issue.



" He calls this 'getting away from it all.'

COMING TO FOLKESTONE?

If you are, don't do this sort of thing.

This cartoon is reproduced by kind permission of the *Sunday Times*.

FLYING MGA MEMBERS



The achievements in the field of sport, of MGA members, may often go unnoticed but pictured herewith are Mr. A. J. Spiller (right) of Gt. Staughton, Huntingdon, and Mr. J. Stewart-Wood (left) former MGA Chairman.

They are seen on arrival at Copenhagen Airport in July, with the plane –a Proctor—which a few days earlier had won the King's Cup Air Race for Mr. Spiller. In the same race Mr. J. Stewart-Wood, piloting his smaller Auster plane came fourth, after a most exciting race. Mr. Stewart-Wood's flying activities are already known to many members who will, without doubt, be quick to congratulate him on being placed second in the air race championship, a race competition promoted by the Royal Aero Club of Great Britain. Final positions in this championship are determined by performances in a series of race competitions. Members will also join with us in congratulating Mr. Spiller who is a well-known turkey breeder but who has been interested in mushroom growing for some time. His plane had to be fitted with long range fuel tanks before the trip to Copenhagen, during which Mr. Stewart-Wood acted as navigator.

Contiuued from page 286.

Birkerod State High School in 1941. He joined the Royal Danish Life Guards in 1943 and was taken prisoner by the Germans. He graduated from Vilvorde Horticultural High School in 1947 and gained his B.Sc. (Hort.) at the Royal Agricultural College. In all he has had five years practical training on horticultural holdings including mushroom farms. From 1951 onwards he has made an intensive study of mushrooms, with Dr. Bels in Holland and with Dr. R. L. Edwards in England. In addition he spent several months of study in America in 1952.

Fred. C. Atkins has resigned from the Board of Noble Mushrooms Ltd. and proposes in future to devote much of his time to his international consulting practice. He will continue to act as Chairman of the Board of White Queen Ltd., a company which is specialising in research into the problems of producing a first-class mushroom spawn.

SURREY FARM WALK

A farm Walk will take place at Borrow House Mushroom Farm, Churt, Surrey on Saturday, 19th September, at 2.30 p.m., by kind invitation of Mr. J. G. Batchelor. On 10 inch shelf beds Mr. Batchelor produces over 10 lb. per sq. ft. per year. If you intend to be present please inform the MGA Secretary, if you have not already done so.

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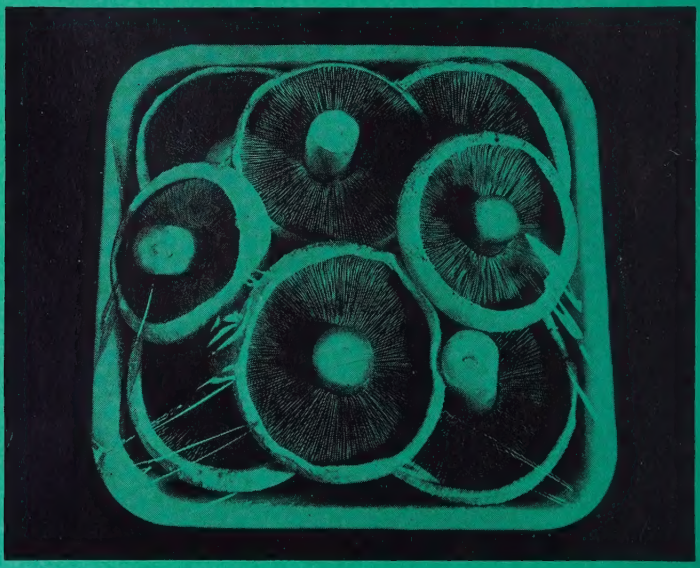
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